TEXAS DEPARTMENT OF TRANSPORTATION

Gulf Intracoastal Waterway

Legislative Report – 81st Legislature

Texas Department of Transportation
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Governor Rick Perry

Lieutenant Governor David Dewhurst

Speaker of the House of Representatives Tom Craddick

Members of the 81st Legislature

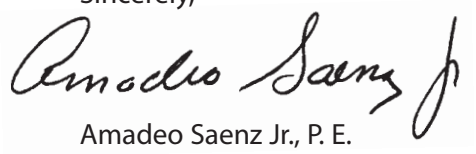
Prior to 1975, the need existed for a single, nonfederal sponsor of the Gulf Intracoastal Waterway (GIWW) in Texas. To fulfill that need, the 64th Texas Legislature passed the 1975 Texas Coastal Waterway Act, now codified as Transportation Code, Chapter 51. In this Act, the legislature appointed the State Highway and Public Transportation Commission, now the Texas Transportation Commission (commission), to act as the state's agent in fulfilling the non-federal sponsorship of the GIWW in Texas.

Through this Act, the legislature also required the commission to continually evaluate the GIWW as it relates to Texas, including an assessment of the importance of the waterway, an identification of principal problems and significant modifications to the waterway, and specific recommendations for legislative action, if any.

The mandated evaluation has been conducted and a report prepared. The report reflects the commission's focus on using and maintaining existing transportation corridors of the state. It is essential that state leaders understand the importance of transportation corridors, such as the waterway, when addressing congestion, air pollution, safety, assets valuations, and economic development opportunities associated with an efficient and effective multimodal transportation network.

The GIWW Legislative Report is hereby submitted to the 81st Texas Legislature in accordance with Transportation Code, Section 51.007.

Sincerely,



Amadeo Saenz Jr., P. E.
Executive Director

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Introduction

The Texas Department of Transportation (TxDOT) has a vision to deliver a 21st century multi-modal transportation system that will improve the quality of life for Texas citizens and increase the competitive position for Texas industry.

Our mission is to provide safe, efficient and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity by : [1]

- **Reducing Congestion**
- **Enhancing Safety**
- **Improving Air Quality**
- **Expanding Economic Opportunity**
- **Preserving the Value of Transportation Assets**

To carry out the agency mission, four fundamental strategies will be employed:

- **We will use all available financial tools to build transportation projects.**
- **We will empower local and regional leaders to solve local and regional transportation problems.**
- **We will harness market-based principles to maximize competition, reduce costs and guide investments**
- **We will facilitate consumer-driven decisions that respond to market forces**

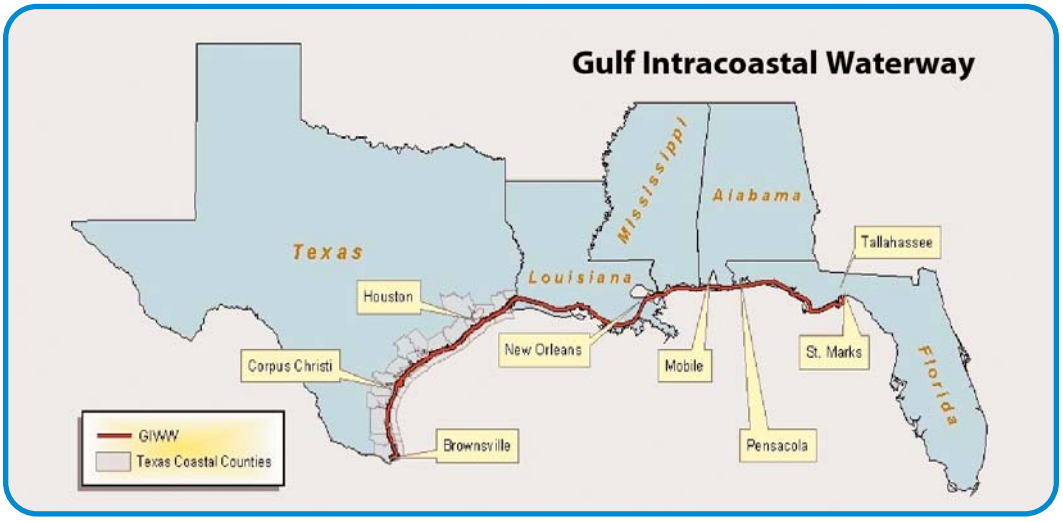

Figure 1 – 1300-mile GIWW

Gulf Intracoastal Waterway in Texas

Figure 2 - Texas GIWW

The Gulf Intracoastal Waterway (GIWW) is a 1,300-mile-long (Figure 1) shallow draft man-made protected waterway that connects ports along the Gulf of Mexico from St. Marks, Florida, to Brownsville, Texas. The Texas Department of Transportation (TxDOT) fulfills the nonfederal sponsorship requirements for the waterway in Texas as described in Chapter 51 of the Transportation Code.

This report, the seventeenth in the series as required by the Transportation Code, is submitted on behalf of the Texas Transportation Commission (commission) to the Eighty First Texas Legislature, summarizing the state's sponsorship efforts to maintain the Gulf Intracoastal Waterway (GIWW) in Texas. The GIWW is an essential component of the state's and nation's transportation network and is an integral part of the Governor's priority goal, "provide for all of Texas transportation needs for the new century."[2] Cargo carried on the GIWW reduces congestion on the highway and rail systems, decreasing maintenance costs and extending the life of these systems. In addition, water transportation is the most fuel efficient mode of transportation and produces the smallest amount of air pollutants per ton of cargo carried.

The GIWW is the nation's third busiest waterway with the Texas portion handling over 58 percent of its traffic. In Texas, the GIWW is 423 miles long (Figure 2). In 2006, over 74 million short tons of cargo were moved on the Texas portion of the waterway with a commercial value of over $25 billion. The majority of this cargo, 64.7 million short tons or 87 percent, is classified as petroleum and chemical related products. In combination with ports, Texas ranked second in the nation for 2006 in total waterborne tonnage moved in the United States. [3]

CHAPTER 1

Benefits Assessment

The development of the Gulf Intracoastal Waterway (GIWW) requires the concerted efforts of federal, state and local interests. Over 150 years ago, planning associated with this project began and continues today. One of the initial functions of the GIWW was to provide protected inland transportation of goods and troops during World War II. It has since evolved into a multipurpose waterway used by recreational and commercial interests. Recreational uses include fishing, skiing, sightseeing and protected water transportation routes for travelers along the coast. Commercial uses include the movement of domestic and international cargo, harvesting of fish and shellfish, and servicing of the gulf and coastal oil and gas industry.

Direct and Indirect Benefits

The GIWW provides some important direct and indirect benefits to the state, such as:

- **In 2006, 74.16 million short tons (one short ton equals 2,000 pounds) of goods were moved on the Texas GIWW. The estimated value of these goods was over $25 billion. This was accomplished by approximately 109,558 barge one-way trips.** [3]

- **In 2006, the GIWW facilitated commercial entities to catch an estimated 12.7 million pounds of shrimp, oysters, crabs and finfish within Texas bay systems amounting to a wholesaler's value of $28.7 million.** [4]

- **Barge transportation reduces congestion. The capacity of one barge is equivalent to 15 railcars or 60 trucks.** [5]

- **Barge transportation is the most fuel efficient mode of transportation. One gallon of fuel moves one ton of cargo 576 miles on the inland waterways, 413 miles on rail, and 155 miles on truck.** [5]

- **Barge transportation produces fewer air emissions than similar movements by truck or rail. When comparing the air emissions produced by truck to barges for the cargo movements (ton-miles), barge transportation produces 40 percent less air emissions. (Barge transportation produces 16 percent less air emissions than rail.)** [5]

- **The movement of goods by barge is a safe mode of transportation. In 2006, according to the Office of Hazardous Materials Safety, the total number of documented hazardous spills in Texas was 54 by air, 1,382 by highway, 100 by railway, and three by water transportation.** [6]

CHAPTER 2

Operational Concerns

The waterway, in its current form, is over 50 years old. During the past 50 years, the size of individual barges and towboats, the width and length of barges lashed together and pushed as a unit, and the volume of traffic have steadily increased. While the base width of the navigable channel is 125 feet at a depth of 12 feet, barges are authorized to travel at a width of 108 feet. When barges must pass each other, they must utilize the waters outside of the authorized channel. In some instances, one barge must ground their barges on the bank of the channel to provide enough space for the pass to be made. Adding in the use of the waterway by fishermen and recreational users, there is constant activity occurring outside the authorized channel. These factors have led many to believe that the 1949 dimensions of the GIWW and its associated structures do not adequately support the state of barge transportation today.

The Brazos River Floodgates and the Colorado River Locks are two lock type structures on the waterway. [8] The structures are over 50 years old and are only 75 feet wide. To move through the structures, vessel operators must park their tows, break the barges apart, move them through the locks in smaller sets or individually, and then put them back together on the other side. This process, known as tripping, is inefficient and causes delays estimated in 2006 to cost over two million dollars a year to the towing industry at each location.

In addition, a serious safety hazard has arisen at the Brazos River Floodgates (Figure 3). Currents within the waterway have increased in recent years. Many believe the reason for this increase is the sedimentation of the mouth of the San Bernard River. Runoff from the San Bernard River now flows into the waterway versus the Gulf of Mexico. Barges trying to enter the GIWW via the

Figure 3 - Brazos River Floodgates Hazardous Condition

western flood gates of the Brazos River are being pushed under the water by this current. In the fall of 2007, the Assistant Secretary of the Army declared this issue a high priority project for the Corps of Engineers (Corps). Staff from the Galveston Corps District office and TxDOT developed a dredging project to restore the opening of the San Bernard River to its original location (Figure 4). The project will provide an outlet to the Gulf of Mexico for waters from the San Bernard River, thereby decreasing flows through the West Brazos River Floodgates. Environmental coordination with the U.S. Fish and Wildlife Service is currently ongoing. The dredging project has been tentatively scheduled for FY 2009.

There is also a lack of locations to park a barge along the waterway in areas called mooring structures. Mooring structures are a set of buoys outside of the navigable

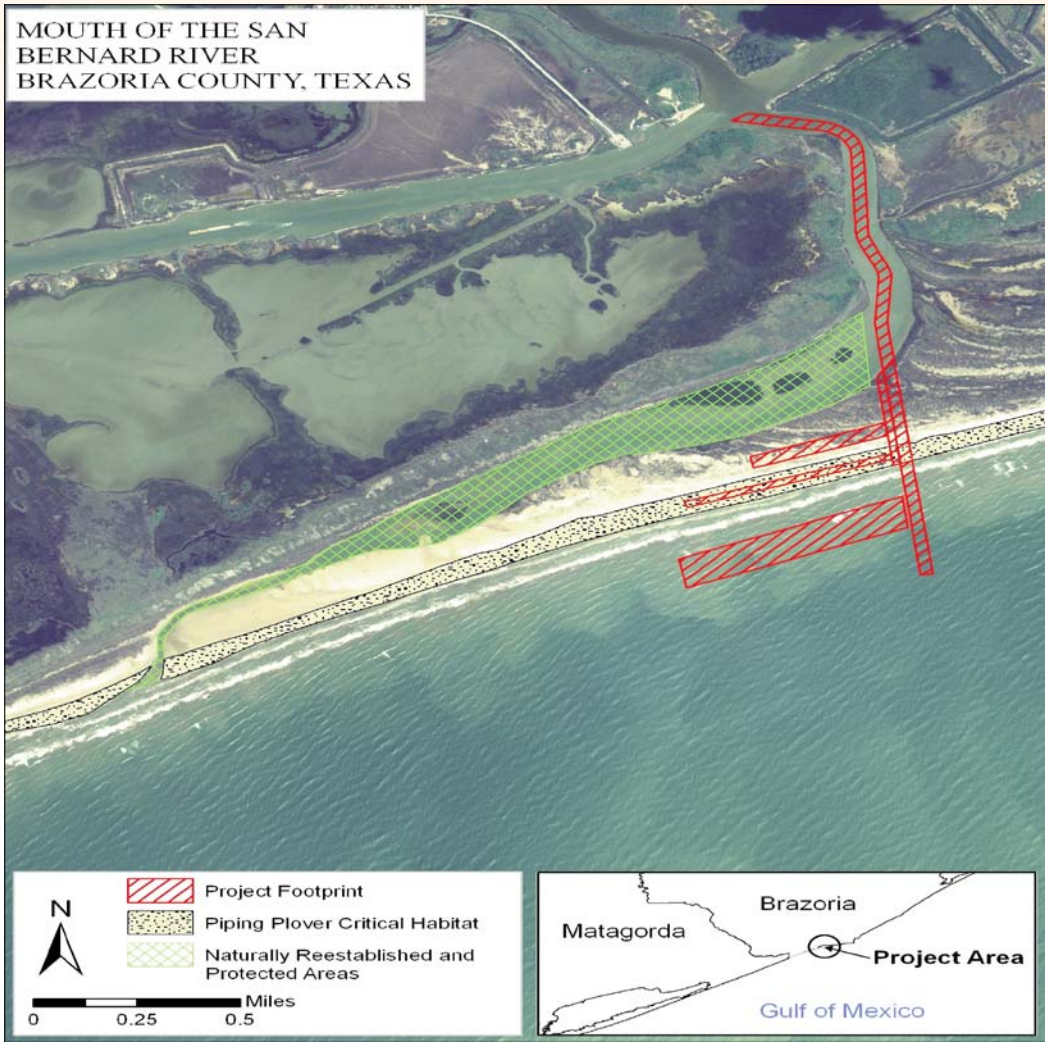

Figure 4 - San Bernard Restoration Project Map

waterway in which a barge can be tied to the buoys (moored). These structures are valuable throughout the waterway, especially during high wind and foggy conditions, and in areas where locks or heavy shoreline development dictate one-way traffic flow. Work is on-going to evaluate existing locations and to determine needs for additional mooring structures.

The area in West Galveston Bay, where the GIWW passes beneath the dual Interstate Highway 45 bridges and the Galveston Island Railroad Bridge, is also a major problem (Figure 5). TxDOT is completing the replacement of the dual Interstate Highway 45 bridges and there is now over a 300-foot opening for barge traffic beneath the bridges. The Galveston Railroad Bridge only has an opening of 105 feet wide and this constriction has been identified by the towing industry as the greatest hazard to navigation along the entire 1,300 miles of the GIWW. The Coast Guard and local legislators have been working for years on replacing the railroad bridge under the authority of the Truman-Hobbs Act. To date, $25 million has been appropriated towards an estimated $79 million project. Replacement of the railroad bridge is estimated to take three years once construction authority is given. Construction authority cannot be given until full appropriations are secured. As an interim navigation safety measure, TxDOT agreed to install six 25-feet wide concrete dolphins in 2008 between the railroad bridge and the highway bridges at a cost of $2.3 million.

Figure 5 - Galveston Causeway

Recent Activities

During the last biennium, TxDOT has participated in various activities to support the waterway. Federal and state studies and research projects were initiated, maintenance dredging projects were performed, dredged material placement property issues were addressed and a national estuary research reserve was created.

Studies and Research

The Corps, under the authority of the Flood Control Act of 1970, has initiated various Section 216 studies. These studies look at specific water resources projects that may have changed because of physical or economic reasons. TxDOT acts as the non-federal sponsor for the studies involving the GIWW in Texas.

For the Texas portion of the GIWW, the waterway was divided into five separate Section 216 study areas. These areas have been further divided into six studies to focus on complex or unique problems. Figure 6 illustrates the Section 216 studies in Texas.

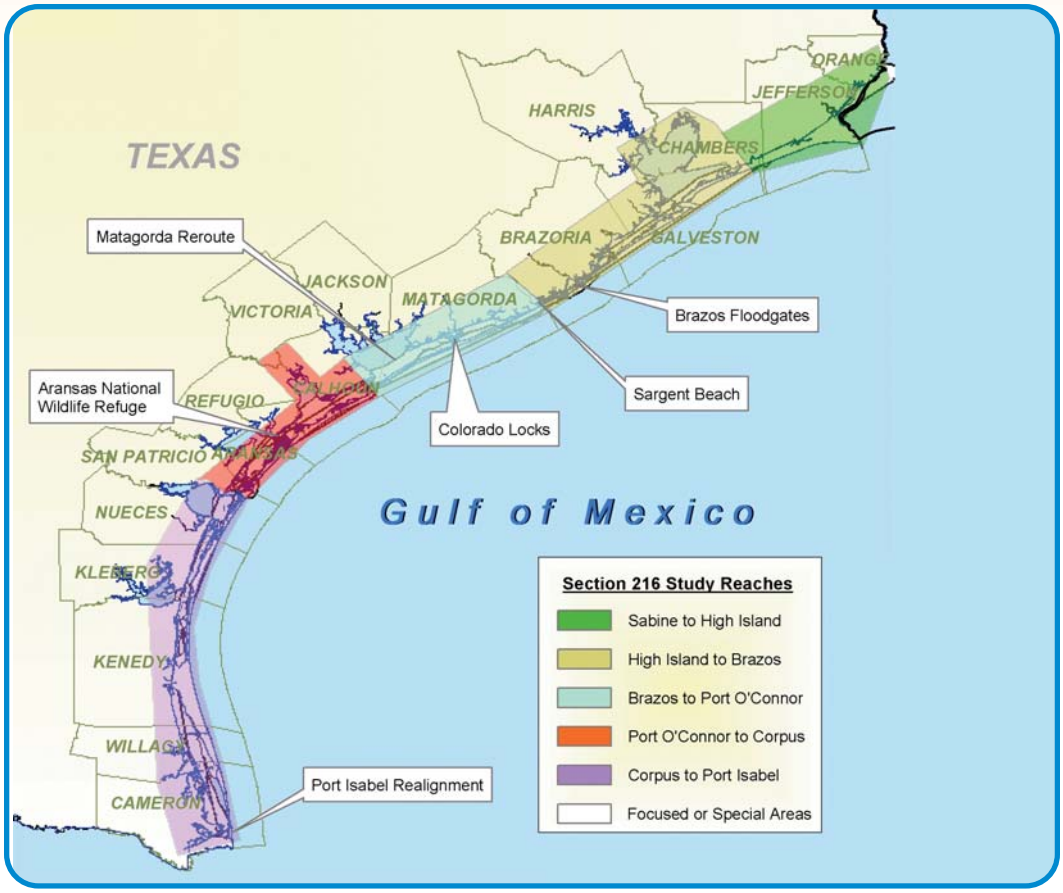

Figure 6 – Section 216 Study Areas

Currently, there are seven active Section 216 studies. The effort to complete these studies is estimated at $29.2 million of which $17.5 million in additional funding is needed. In FY 2007, three of these studies were funded, receiving a total of $0.749 million in federal funding. In FY 2008, no studies were funded.

In addition to the federal Section 216 studies, TxDOT has initiated marine transportation-related studies. Several of these marine transportation-related studies were conducted through TxDOT's research program. This program, plus interagency agreements, allowed TxDOT to participate in studies that address various needs of the GIWW. Research studies funded by TxDOT are shown in Table 1-1.

TxDOT Sponsored Research

Table 1-1

PROGRAM	STUDY	RESEARCHER(S)
State Planning Research	Containerized Freight Movement in Texas (completed)	University of Texas, Center for Transportation Research
State Planning Research	Development of a Comprehensive Urban Commodity/Freight Movement Model for Texas (completed)	Texas A&M University, Texas Transportation Institute
State Planning Research	Short Sea Shipping Initiatives and the Impacts on the Texas Transportation System (completed)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute
State Planning Research	Value of Texas Seaports in an Environment of Increasing Global Trade (on-going)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute
State Planning Research	Development of Potential Policies and Incentives to Encourage Movement of Containerized Freight on Texas Inland Waterways(on-going)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute
State Planning Research	Impacts of Dray System along Ports, Intermodal Yards and Border Ports of Entry (on-going)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute
State Planning Research	Emerging Trade Corridors and Texas Transportation Planning (on-going)	University of Texas, Center for Transportation Research

Dredged Material Placement Property Acquisition

For fiscal years (FY) 2007 and 2008, TxDOT was appropriated $0.65 million and $0.7 million respectively for acquiring dredged material placement sites when the Corps requests TxDOT to do so as the non-federal sponsor of the GIWW. In 1998, the Corps formally requested TxDOT to acquire 242 acres in Galveston County. From 1954 to 2000, the Corps had an easement for the placement of dredged material on the property. Ownership of the property changed and the new property owner decided to revoke the easement. TxDOT initiated procedures to acquire the property and was forced to use condemnation authority. The case is still in appeal.

Maintenance Dredging Activities

During 2007, approximately $29,844,000 in federal funds was expended by the Corps in 100 percent federally contracted and funded projects to operate and maintain the structures and navigability of the Texas GIWW. Approximately 5,570,000 cubic yards of sediment were dredged in four separate projects. Of this material, approximately 2,270,000 cubic yards were placed in confined placement sites, 2,825,000 cubic yards were placed in open-bay sites, and 475,000 cubic yards were used beneficially.[9] Figure 7 depicts the relative volumes that were removed and the location along the waterway.

During 2008, approximately $34,902,000 in federal funds was expended by the Corps in 100 percent federally contracted and funded projects to operate and maintain the structures and navigability of the Texas GIWW. Approximately 4,278,000 cubic yards of sediment were dredged in five separate projects. Of this material, approximately 1,670,000 cubic yards were placed in confined placement sites, 1,818,000 cubic yards were placed in open-bay sites, and 790,000 cubic yards were used beneficially.[9] Figure 7 depicts the relative volumes that were dredged and their relative location along the waterway.

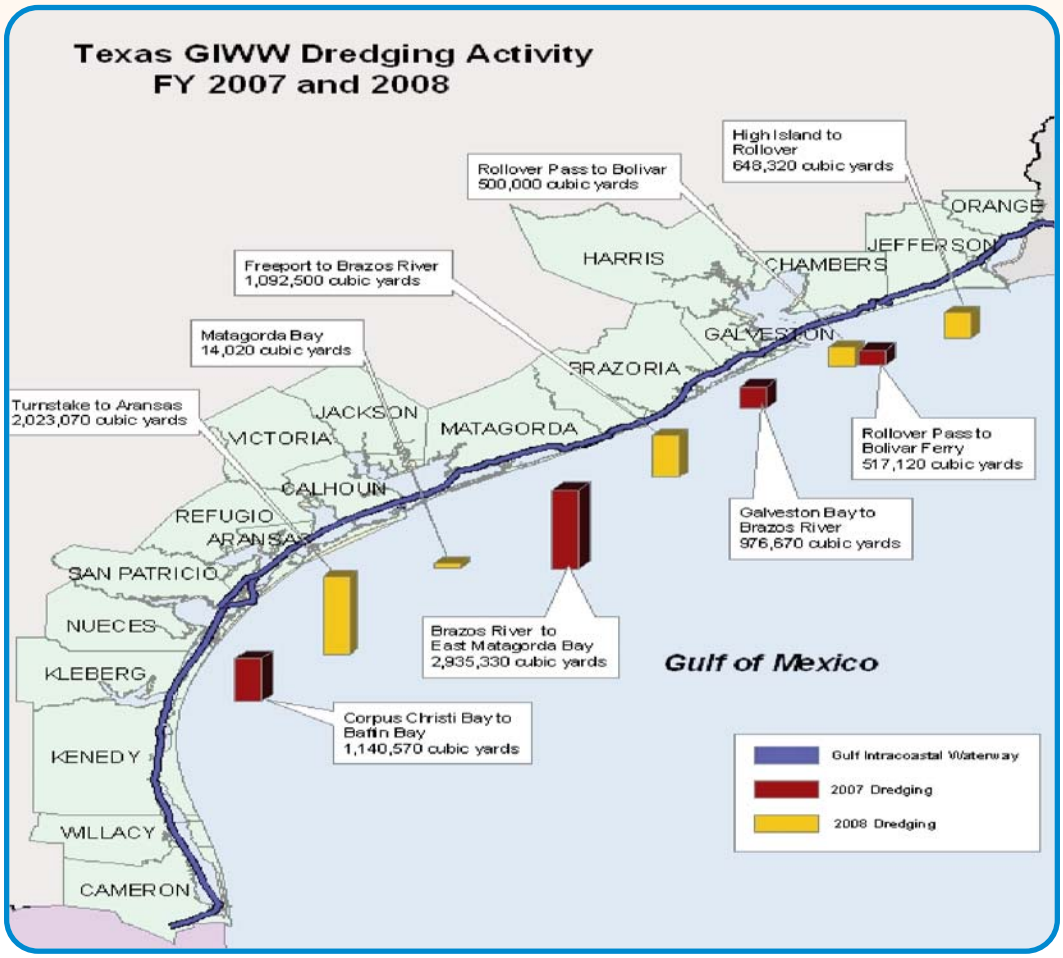

Figure 7 – FY 2007 and 2008 Dredging

Weather Induced Impacts

During 2008, the Texas coast was impacted by four hurricanes. The cleanup, recovery, and determination of fiscal impacts from these events are still on-going at the time of this report's publication. Preliminary impacts to commercial navigation were estimated by the Gulf Intracoastal Canal Association for each hurricane as follows:.

Hurricane Dolly – Main impact area Brownsville and South Texas

- **133 miles of Texas GIWW closed from July 23 to July 24**
- **Minor shoaling and damages to aids to navigation**
- **Major shoaling of tributary channels including Arroyo Colorado and Channel to Port Mansfield**
- **Estimated direct transportation related cost of less than $100,000**

Hurricane Eduardo – Main impact area Sabine Pass to High Island

- **152 miles of Texas GIWW closed from August 4 to August 5**
- **No significant shoaling or damages**
- **Estimated direct transportation related cost of $1,125,000**

Hurricane Gustav – Main impact area Louisiana with some effects in Southeast Texas

- **61 miles of Texas GIWW closed from August 31 to September 3**
- **Significant flooding in Louisiana resulted in the closure of locks and bridges, halting the eastward movement of barge traffic from Texas**
- **Estimated direct transportation related cost of $11,000,000**

Hurricane Ike – Main Impact area Galveston

- **181 miles of Texas GIWW closed from September 11 to September 14**
- **Storm debris closed the 61 mile segment between Port Arthur and Bolivar for an additional 10 days.**
- **Estimated direct transportation related cost of $20,000,000**

CHAPTER 4

Issues of Concern

There are several items of concern related to future operations of the GIWW. As previously mentioned, the constriction of the GIWW at the Galveston Railroad Bridge poses the biggest navigational hazard to commercial navigation along the entire 1,300-mile long GIWW. Additional appropriations of at least $54 million are needed to begin design and construction to address this problem.

Adequate federal funding towards operations and maintenance of the GIWW are another area of concern. The Corps has not received adequate operations and maintenance funding to maintain the waterway as designed. There has been a rapid escalation in dredging costs associated with the rise in the price of oil and the scarcity of equipment due to the increased activity necessitated by major storms. The Corps budget has not increased to offset this rise in dredging costs and projects are being deferred or downsized. As a result, the Corps has not been able to maintain the entire waterway at its authorized depth. Commercial navigation is transporting smaller amounts of commodities per vessel in response to a shallower waterway, resulting in higher transportation costs. It is estimated that for every ton left behind due to draft restrictions, there is an increase in transportation costs of at least $0.035/ton mile.[10] With over 30 billion ton miles traveled in the movement of commodities on the Texas GIWW in 2006, a 10 percent reduction in capacity equates to $105 million in increased transportation costs. Continued degradation of the state's water transportation infrastructure and associated increases in transportation costs could economically impact water dependent industries such as chemical and petro-chemical industries.

An increasing population in Texas has resulted in increased shoreline development

of private property along navigable waterways. Marinas, residential developments, docks, piers and other shoreline modifications are occurring throughout the coastal regions of the state. As more projects are developed, safety issues are developing for navigation interests as the navigation channels become restricted and congested (Figure 8). TxDOT has discussed this issue with the councils of the Texas Coastal Management Program. Their recommendation was to address these concerns during the comment period on Corps permit requests. The Corps has agreed to evaluate navigational concerns, but their willingness to control shoreline development along navigable waterways has been limited. It is still unknown at this time how to appropriately balance private property rights and navigation interests.

Finally, TxDOT was designated as the non-federal sponsor of the GIWW in the 1975 Texas Coastal Waterway Act. In 1983, Texas and the Federal Government signed a Sponsorship Resolution detailing the non-federal sponsor's duties. One of the primary duties of the non-federal sponsor is the provision of lands, easements, rights of way, relocations and necessary placement areas for maintenance and operation of the GIWW.

Figure 8 - Development along the GIWW

As part of a 50-year GIWW dredged material management plan, there are over 200 designated placement areas along the GIWW in Texas. These sites were established as the least costly, environmentally acceptable long-term dredged material placement areas for maintenance of the GIWW. In addition to these sites, there are numerous areas where the beneficial use of dredged material can occur. Projects such as the development of marshes (Figure 9) or the placement of dredged material on eroding Gulf beaches can be highly desirable to the state. Competing interest of federal and state agencies, a lack of incentives, and the high cost of developing projects are hindrances to the development of beneficial use of dredged material projects.

To support the state's non-federal sponsorship of the GIWW in Texas and facilitate planning, maintenance, preservation, research and improvement of

Figure 9 - West Galveston Bay Marsh Creation Site

the waterway, the following are recommended for consideration by the Texas Legislature:

- **The state continues to recognize and promote the Gulf Intracoastal Waterway as an integral and valuable part of the state's multimodal transportation system by providing for the financial resources to accomplish the non-federal responsibilities in the areas of acquisition of placement areas and development of beneficial use of dredged material projects,**
- **The state advocates for additional federal funding of the Corps of Engineers Operations and Maintenance budget for Texas.**

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